Claims

1. Disposable unit for single use for the analysis of biological liquids, in particular cell suspensions such as blood, urine, or sperm, comprising a diluent chamber, a sample dosage device, and a measuring chamber, wherein

the sample dosage device has a dosage element into which a dosage capillary running between two openings is integrated,

the dosage element is arranged inside a dosage element chamber formed in the disposable unit and is movable in such a manner that one opening of the dosage capillary is connected to a sample loading zone of the disposable unit when the dosage element is in a first position, and that, when it is in a second position, one of the openings of the dosage capillary is connected to the diluent chamber and the other opening of the dosage capillary is connected to the measuring chamber, so that the diluent chamber and the measuring chamber are in the second position connected to one another via the dosage capillary, and

the measuring chamber has a defined volume and is provided with a ventilation valve which is permeable to gas but impermeable to the sample and diluent liquids, so that the measuring chamber is completely filled free of bubbles by the liquid flowing into it.

2. Disposable unit according to claim 1, comprising a plurality of measuring channels, each comprising a diluent chamber, a sample dosage device, and a measuring chamber.

3. Disposable unit according to claim 2, wherein a plurality of dispensing capillaries of the sample dosage device are integrated into a common dosage element.

4. Disposable unit according to claim 1, in which the dosage element is formed as a rotor element mounted rotatably in the dosage element chamber.

5. Disposable unit according to claim 1, wherein the diluent chamber is filled with a liquid diluent pre-packaged by the manufacturer of the disposable unit and the volume of the pre-packaged diluent is larger than the volume of the measuring chamber.

6. Disposable unit according to claim 1, wherein the measuring chamber contains an agitator with contact-free activation, in particular a magnetic agitator.

7. Disposable unit according to claim 1, wherein the measuring chamber has an observation window to allow optical analysis of a liquid contained in the measuring chamber.

8. Disposable unit according to claim 7, wherein the measuring chamber includes a measuring area with a liquid layer formed by a partial volume of the measuring chamber, the liquid layer having, in comparison to the rest of the measuring chamber, a small volume and a small thickness measured perpendicular to the surface of the observation window.

9. Disposable unit according to claim 8, wherein the volume of the liquid layer in the measuring area is no more than one third, preferably no more than one tenth, of the volume of the measuring chamber.

10. Disposable unit according to claim 8, wherein the thickness of the liquid layer in the measuring area is no more than 1 mm, preferably no more than 0.5 mm.

11. Disposable unit according to claim 1, comprising a machine-readable code that contains information pertinent to the analysis of the test results.

12. System for the analysis of biological liquids, in particular cell suspensions such as blood, urine, or sperm, comprising disposable units according to any one of the preceding claims and an analysis instrument, the analysis instrument comprising

a mounting unit for positioning a disposable unit in a measuring position,

an actuator, which operates on the diluent chamber in such a manner that the liquid diluent contained therein is placed under pressure and consequently flows into the measuring chamber via the dosage capillary when the dosage element is in its second position,

a device for detecting a physical property of a liquid contained in the measuring chamber of the disposable unit positioned in its measuring position,

the measuring chamber is filled completely and free of bubbles by the sample liquid flushed out of the dosage capillary and by the diluent liquid while the gas displaced by the incoming liquids escapes through the ventilation valve which is permeable to gas but impermeable to the sample and diluent liquids, and

an evaluation device for deriving test results based on the result of the detection of the physical property.

13. System according to claim 12, wherein the analysis instrument has an actuator for moving the dosage element between its first position and its second position.

14. System according to claim 12, wherein the analysis instrument has an agitator for mixing the liquid contained in the measuring chamber.

15. System according to claim 12, wherein the device for detecting a physical property comprises an optical detection device, in particular a microscope for the microscopic analysis of liquid contained in the measuring chamber.

16. Method for the analysis of biological liquids, in particular cell suspension such as blood, urine, or sperm, by means of a disposable unit according to any of one Claims 1 to 11, wherein

the sample liquid is placed in contact with the sample loading zone of the disposable unit in such a manner that it is sucked into the dosage capillary by capillary forces when the dosage element is located in its first position,

the dosage element is moved to its second position,

pressure is exerted on liquid diluent contained in the diluent chamber in such a manner that it flows into the measuring chamber via the dosage capillary, whereby the sample liquid is flushed out of the dosage capillary into the measuring chamber, and

a physical property of the liquid, which is thereafter contained in the measuring chamber, is measured and analyzed to derive the test result.

17. Method according to claim 16, wherein the measurement of the physical property comprises

microscopic analysis of the liquid contained in the measuring chamber.

18. Method according to claim 17, wherein the microscopic analysis is performed by means of an electronic camera, and the image from the electronic camera is electronically analyzed with respect to the number and morphology of cells contained in the measuring chamber.